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EXAMINER

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2615

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Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 6, 9 through 12, 14 through 19, 24 through 30, 32 through 42, 44 through 46, 48 through 52, 57 through 61 and 63 through 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Urbanski (US Patent 5,668,871).
3. Regarding Claim 1, Urbanski discloses a hands-free radiotelephone set (i.e., speakerphone operation in a communications device) (column 6, lines 47-50) comprising: a reverse voice detector (Fig. 3, reference 314; column 9, lines 3-8) that corresponds to the first voice activity detector claimed and communicates with a reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and generates a voice detect signal (Fig. 3, reference 340) that corresponds to the first voice data claimed and is based on the reverse (i.e., inbound) path signal (Fig. 9, steps 907-911; column 13, lines 15-47; column 15, lines 22-26); a forward voice detector (Fig. 3, reference 318; column 8, lines 34-39) that corresponds to the second voice activity detector claimed and communicates with a forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed and generates a voice detect signal (Fig. 3, reference 333) that corresponds to the second voice data claimed and is based on the forward (i.e., outbound) path signal (Fig. 9, steps 907-911; column 13, lines 15-47); an audio signal processor (Figs. 2-3, reference 209; column 8, lines 9-22) that corresponds to the processor claimed and controls attenuators (Fig. 3, reference 305, 307; column 8, lines 39-42; column 9, lines 20-24) in

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the reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and the forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed based on whether or not voice is present in both paths (i.e., the first data and the second voice data) (column 9, lines 9-20). As such, Urbanski discloses the voice detect signal (Fig. 3, reference 340; column 9, lines 3-8) that corresponds to the first voice data claimed and the voice detect signal (Fig. 3, reference 333; column 8, lines 34-39) that corresponds to the second voice detection signal claimed are voice present signals.

4. Regarding Claim 6 Urbanski further discloses the communication device being a cellular telephone (column 5, lines 25-28).

5. Regarding Claim 9, Urbanski further discloses selective exclusive path attenuation of (i.e., awarding control to the inbound or outbound path) based on the combination of presence of voice on the paths (i.e., comparison of first voice data and second voice data) (Fig. 13; column 15, lines 57-60).

6. Regarding Claim 10, Urbanski further discloses a wireless communications channel (Fig. 2, reference 121; column 5, lines 43-48).

7. Regarding Claim 11, Urbanski further discloses a microphone input transducer (Fig. 2, reference 201) coupled to the reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and receiving a voice signal generated by a user (column 6, lines 49-52).

8. Regarding Claim 12, Urbanski further discloses a speaker output transducer (Fig. 2, reference 201) coupled to the forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed reproducing a calling parties voice (column 7, lines 18-19).

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9. Regarding Claim 14, Urbanski further discloses an echo canceller (Fig. 3, reference 303; column 8, lines 53-65).

10. Regarding Claim 15, Urbanski further discloses an A/D converter (Fig. 2, reference 205; column 6, lines 52-55) that corresponds to the encoder claimed in the reverse path (Fig. 3, reference 248) that corresponds to the inbound channel claimed.

11. Regarding Claim 16, Urbanski further discloses a D/A converter (Fig. 2, reference 207; column 6, lines 58-60) that corresponds to the decoder claimed in the forward path (Fig. 3, reference 256) that corresponds to the outbound channel claimed.

12. Regarding Claim 17, Urbanski further discloses an interface to a transmitter (Fig. 2, reference 215; column 6, lines 60-63) that corresponds to the modem transmitter module claimed.

13. Regarding Claim 18, Urbanski further discloses an interface to a receiver (Fig. 2, reference 217; column 7, lines 7-9) that corresponds to the modem receiver module claimed.

14. Claims 19, 24, 27 through 30 and 32 through 36 are essentially similar to claims 1, 6, 9 through 12 and 14 through 18, respectively, and are rejected on the same grounds.

15. Regarding Claim 42, Urbanski discloses a hands-free radiotelephone set (i.e., speakerphone operation in a communications device) (column 6, lines 47-50) comprising: a reverse voice detector (Fig. 3, reference 314; column 9, lines 3-8) that corresponds to the first voice activity detector claimed and communicates with a reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and generates a voice detect signal (Fig. 3, reference 340) that corresponds to the first voice detection signal claimed and is based on whether the signal is greater than a threshold that corresponds to the first voice threshold claimed (Fig. 9,

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steps 907-911; column 13, lines 15-47; column 15, lines 22-26); a forward voice detector (Fig. 3, reference 318; column 8, lines 34-39) that corresponds to the second voice activity detector claimed and communicates with a forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed and generates a voice detect signal (Fig. 3, reference 333) that corresponds to the second voice detection signal claimed and is based on whether the signal is greater than a threshold that corresponds to the second voice threshold claimed (Fig. 9, steps 907-911; column 13, lines 15-47); an audio signal processor (Figs. 2-3, reference 209; column 8, lines 9-22) that corresponds to the processor claimed and controls attenuators (Fig. 3, reference 305, 307; column 8, lines 39-42; column 9, lines 20-24) in the reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and the forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed based on whether or not voice is present in both paths (i.e., a comparison of the first voice detection signal and the second voice detection signal) (column 9, lines 9-20). Urbanski further discloses the voice detect signal (Fig. 3, reference 340) that corresponds to the first voice detection signal claimed is a binary (i.e., assertable) signal (column 9, lines 3-8) and the voice detect signal (Fig. 3, reference 333) that corresponds to the second voice detection signal claimed is a binary (i.e., assertable) signal (column 8, lines 34-39). Urbanski further discloses the voice detect signal (Fig. 3, reference 340) that corresponds to the first voice detection signal claimed is generated by comparing the signal energy to a threshold (Fig. 9, steps 902, 907-911; column 13, lines 15-47; column 15, lines 22-26) that corresponds to the first voice threshold claimed and the voice detect signal (Fig. 3, reference 333) that corresponds to the second voice detection signal claimed is generated by comparing the signal

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energy to a threshold (Fig. 9, steps 902, 907-911; column 13, lines 15-47) that corresponds to the second voice threshold claimed.

16. Regarding Claim 44, Urbanski further discloses comparison based on whether or not voice is present in both paths (i.e., testing for the assertion of the of the first voice detection signal and the second voice detection signal) (column 9, lines 9-20).

17. Regarding Claim 45, Urbanski further discloses attenuation of only the forward path (i.e., awarding control to the inbound path) when voice is detected on the reverse path only (i.e., when the first voice present signal is asserted and the second voice present signal is not asserted) (Fig. 13, present state REVERSE; column 15, lines 57-60).

18. Regarding Claim 46, Urbanski further discloses attenuation of only the reverse path (i.e., awarding control to the outbound path) when voice is detected on the forward path only (i.e., when the first voice present signal is not asserted and the second voice present signal is asserted) (Fig. 13, present state FORWARD; column 15, lines 57-60).

19. Regarding Claim 48, Urbanski further discloses attenuation of only the reverse path (i.e., awarding control to the outbound path) when voice is detected on the forward path and the reverse path (i.e., when the first voice present signal is asserted and the second voice present signal is asserted) (Fig. 13, present state BOTH; column 15, lines 57-60).

20. Regarding Claim 49, Urbanski further discloses looking up the threshold in a table (i.e., adjusting the threshold) based on the presence of voice (i.e., the comparison of the first voice detection signal and the second voice detection signal) (Fig. 9, steps 903-907; column 12, lines 57-63; column 15, lines 22-26).

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21. Regarding Claim 50, Urbanski further discloses looking up the threshold in a table (i.e., adjusting the threshold) based on the presence of voice (i.e., the second voice detection signal) (Fig. 9, steps 903-907; column 12, lines 57-63; column 15, lines 22-26).
22. Regarding Claim 51, Urbanski further discloses adding a noise factor to the threshold (i.e., multiplying by a scale factor) based on the presence of voice (i.e., the second voice detection signal) (Fig. 9, step 907; column 12, lines 57-63; column 15, lines 22-26).
23. Regarding Claim 52, Urbanski further discloses initiating thresholds based on lookup tables (i.e., predetermined computations) (Fig. 13; column 15, lines 57-60).
24. Regarding Claim 57, Urbanski further discloses the communication device being a cellular telephone (column 5, lines 25-28).
25. Regarding Claim 60, Urbanski further discloses a microphone input transducer (Fig. 2, reference 201) coupled to the reverse path (Fig. 3, reference 248) that corresponds to the inbound path claimed and receiving a voice signal generated by a user (column 6, lines 49-52).
26. Regarding Claim 61, Urbanski further discloses a speaker output transducer (Fig. 2, reference 201) coupled to the forward path (Fig. 3, reference 256) that corresponds to the outbound path claimed reproducing a calling parties voice (column 7, lines 18-19).
27. Regarding Claim 63, Urbanski further discloses an echo canceller (Fig. 3, reference 303; column 8, lines 53-65).
28. Regarding Claim 64, Urbanski further discloses an A/D converter (Fig. 2, reference 205; column 6, lines 52-55) that corresponds to the encoder claimed in the reverse path (Fig. 3, reference 248) that corresponds to the inbound channel claimed.



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29. Regarding Claim 65, Urbanski further discloses a D/A converter (Fig. 2, reference 207; column 6, lines 58-60) that corresponds to the decoder claimed in the forward path (Fig. 3, reference 256) that corresponds to the outbound channel claimed.

30. Regarding Claim 66, Urbanski further discloses an interface to a transmitter (Fig. 2, reference 215; column 6, lines 60-63) that corresponds to the modem transmitter module claimed.

31. Regarding Claim 67, Urbanski further discloses an interface to a receiver (Fig. 2, reference 217; column 7, lines 7-9) that corresponds to the modem receiver module claimed.

### ***Claim Rejections - 35 USC § 103***

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

33. Claims 13, 31 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urbanski in view of McCaslin et al. (US Patent 5,668,794).

34. Regarding Claims 13, 31 and 62, as shown above apropos of Claims 1, 19 and 42, respectively, Urbanski anticipates all elements except a comfort noise generator generating comfort noise at selected times based on the voice activity signals. McCaslin discloses a variable gain echo suppressor that injects white noise into a transmission path (i.e., generates comfort noise) in accordance with the setting of a signal attenuator (i.e., at selected times based on the

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voice activity signals) (Fig. 23; column 26, lines 48-58). McCaslin further discloses that such an arrangement provides relief from annoying background noise variations (column 26, lines 28-36). It would have been obvious to one skilled in the art at the time of the invention to apply comfort noise generation, as taught by McCaslin to the speakerphone taught by Urbanski for the purpose of realizing the aforesaid advantage.

35. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Urbanski in view of Li (US Patent 5,612,996).

36. Regarding Claim 47, as shown above apropos of Claim 42, Urbanski anticipates all elements except awarding control to the inbound path when the first voice present signal is asserted and the second voice present signal is asserted. Li discloses a speakerphone gain processing system that increases receive gain (i.e., awards control to the inbound path) in a doubletalk situation (i.e., when the first voice present signal is asserted and the second voice present signal is asserted) (Fig. 3; steps 314, 332; column 9, lines 25-37). Li further discloses that such an arrangement provides substantially increased stability in speakerphone operation when used in conjunction with an echo canceller (column 9, lines 53-57). It would have been obvious to one skilled in the art at the time of the invention to apply inbound path control during doubletalk, as taught by Li to the speakerphone taught by Urbanski for the purpose of realizing the aforesaid advantage.

*Response to Arguments*

37. Applicant's arguments filed 24 April 2005 have been fully considered but they are not persuasive.

38. Applicant alleges that the recitation in the amended independent claims that the voice envelope is a moving average patentably distinguishes from Urbanski. Examiner respectfully disagrees.

39. Amended claims 1 and 19 recite the “voice data comprises at least one of a first voice energy signal, a first voice envelope that is a moving average, a first voice sample, and a first voice present signal” (emphasis added). As shown in the prior art rejections above, Urbanski discloses voice detect signals (Fig. 3, reference 333, 340; column 8, lines 34-39; column 9, lines 3-8) that corresponds to the voice data claimed that are voice present signals. Because the limitations are presented in the alternative, this disclosure is sufficient to show anticipation.

40. Similarly, amended Claim 42 recites the “voice present signal is generated by comparing at least one of a ... voice signal energy and a ... voice signal envelope that is a moving average to a ... dynamic voice threshold” (emphasis added). As shown in the prior art rejections above, Urbanski discloses voice detect signals (Fig. 3, reference 333, 340; column 8, lines 34-39; column 9, lines 3-8) that corresponds to the voice present signals claimed that are generated by comparing a voice signal energy to a dynamic threshold. Because the limitations are presented in the alternative, this disclosure is sufficient to show anticipation.

*Conclusion*

41. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Daniel Swerdlow  
Primary Examiner  
Art Unit 2615

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9 June 2006